California Regional Water Quality Control Board
Santa Ana Region
and
U.S. Environmental Protection Agency
Region IX

MONITORING AND REPORTING PROGRAM NO. R8-2004-0062
NPDES NO. CA0110604

for the

Orange County Sanitation District
Reclamation Plant No. 1 and Treatment Plant No. 2

California Regional Water Quality Control Board
Santa Ana Region
and
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NPDES Permit No. CA0110604 is comprised of two documents, Order No. R8-2004-0062 (Waste Discharge Requirements and Authorization to Discharge under the NPDES) and Monitoring and Reporting Program (M&RP) No. R8-2004-0062. The following sections of Order No. R8-2004-0062 are incorporated into this M&RP: Compliance Determination; Required Notices and Reports; Provisions; Special Provisions; and Permit Re-Opening, Revision, Revocation, and Reissuance. M&RP No. R8-2004-0062 supersedes and entirely replaces M&RP No. 98-5, as modified by Order No. R8-2002-0055.

A. MONITORING AND REPORTING REQUIREMENTS:

1. All influent, effluent, sludge/biosolids, and pretreatment sampling, preservation, and analyses shall be performed in accordance with the most recent edition of 40 CFR 136 and 40 CFR 503, or alternative test procedures approved by EPA under 40 CFR 136, unless otherwise specified in this permit. In addition, the Regional Board and EPA may specify test methods which are more sensitive than those specified under 40 CFR 136 or 40 CFR 503. All receiving water monitoring sampling, preservation, and analyses shall be performed in accordance with methods specified in this permit, or by methods specified and/or approved by the Regional Board and EPA.

2. Chemical, bacteriological, and bioassay analyses shall be conducted at a laboratory certified for such analyses by the California Department of Health Services, or at laboratories approved by the Regional Board Executive Officer.

3. In conformance with federal regulations at 40 CFR 122.45(c), monitoring for all permit effluent limitations, standards, or prohibitions for metals shall be conducted using the total recoverable method, except for Chromium VI where the dissolved method may be used. For effluent and receiving water monitoring:

a. The discharger shall require its testing laboratory to calibrate the analytical system down to the minimum level (ML)[i] specified in Attachment "A" for priority pollutants with effluent limitations in this permit, unless an alternative ML is approved by the Regional Board Executive Officer and EPA. When there is more than one ML value for a given chemical, the discharger shall use an ML value and associated analytical method, listed in Attachment "A", that is below the effluent limitation. If no ML value is below the effluent limitation, then the lowest ML value and associated analytical method shall be used. Any internal quality control data associated with the sample must be reported when requested by the Regional Board Executive Officer or EPA. The Regional Board and EPA will reject laboratory data if quality control data is unavailable or unacceptable.

b. The discharger must report with each sample result the reported ML and the laboratory's current Method Detection Limit (MDL)[ii]. The discharger must report the results of analytical determinations for the presence of chemical constituents in a sample using the following reporting protocols:

1) Sample results greater than or equal to the reported ML shall be reported "as measured" by the laboratory (i.e., the measured chemical concentration in the sample).

2) Sample results less than the reported ML, but greater than or equal to the laboratory's MDL, must be reported as "Detected, but Not Quantified" or "DNQ". The laboratory must write the estimated chemical concentration of the sample next to "DNQ", as well as the words "Estimated Concentration" (may be shortened to "Est. Conc.").

3) Sample results less than the laboratory's MDL must be reported as "Not Detected" or "ND".

c. The discharger shall submit to the Regional Board and EPA all reports necessary to determine compliance with priority toxic pollutant effluent limitations and shall follow the chemical nomenclature and sequential order of constituents shown in Attachment "B". The discharger shall report with each sample result:

1) The ML or PQL[iii] listed in Attachment "A" or "C", respectively, achieved by the laboratory; and

2) The laboratory's current MDL, as determined by procedures found in the most recent edition of 40 CFR 136.

d. For receiving water monitoring and for priority pollutants without effluent limitations, the discharger shall require its testing laboratory to quantify constituent concentrations to the lowest achievable MDL as determined by the procedure found in the most recent edition of 40 CFR 136. In situations where the most stringent applicable receiving water objective, as specified in the Ocean Plan, is below the ML value specified in Attachment "A" and the discharger cannot achieve an MDL value for that pollutant below the ML value, the discharger shall submit justification why a lower MDL value cannot be achieved. Justification shall be submitted together with monthly monitoring reports.

4. For non-priority pollutant monitoring, analytical data shall be reported with identification of quantitation levels and method detection limits, as determined by procedures found in the most recent edition of 40 CFR 136.

5. The discharger shall have and implement an acceptable written quality assurance (QA) plan for laboratory analyses. For constituents listed in Table 1 – Minimum Levels - Volatile Chemicals; Table 2 – Minimum Levels - Semi Volatile Chemicals; Table 3 – Minimum Levels - Inorganics; Table 4 – Minimum Levels - Pesticides and PCBs, and Ammonia analysis, spike samples shall be performed in duplicate and conducted on a minimum of ten percent (10%) of the samples, or at least one sample per month, whichever is greater. Test precision will be determined by comparing the individual concentrations of the duplicate spike. For Oil and grease, duplicate chemical analyses shall be conducted on a minimum of 10% of the samples, or at least one sample per month, whichever is greater. A similar frequency shall be maintained for analyzing spiked samples. For physical parameters including Total suspended solids, Biochemical oxygen demand, Carbonaceous biochemical oxygen demand, Settleable solids, Turbidity, and pH, duplicate analyses shall be conducted on a minimum of 10% of the samples, or at least one sample per month, whichever is greater. When requested by the Regional Board or EPA, the discharger will participate in the NPDES discharge monitoring report QA performance study.

6. The results of all monitoring required by this permit shall be reported to the Regional Board and EPA, and shall be submitted in a format acceptable by the Regional Board and EPA that allows direct comparison with the limitations and requirements of this permit. Specific reporting formats may include preprinted forms and/or electronic media. Electronic receiving water monitoring data should be in STORET format, or in an alternative format specified by the Regional Board and EPA. A CD-ROM accompanied with a signed cover letter may serve as the official receiving water monitoring data submittal.

7. The discharger shall tabulate the monitoring data to clearly illustrate compliance and/or noncompliance with the requirements of this permit.

8. For 2,3,7,8-TCDD monitoring, the discharger shall multiply each measured or estimated congener concentration by its respective toxic equivalency factor (TEF), as shown below, and report the sum of these values. The discharger shall use EPA's Method 1613 for dioxin and furans. The discharger shall report the analytical results of the monitoring for each congener, including the quantifiable limit (approved reporting limit) and the method detection limit, and the measured or estimated concentration.

Toxic Equivalency Factors for 2,3,7,8-TCDD Equivalents	
Congener	***TEF***
2,3,7,8-TetraCDD	1
1,2,3,7,8-PentaCDD	1.0
1,2,3,4,7,8-HexaCDD	0.1
1,2,3,6,7,8-HexaCDD	0.1
1,2,3,7,8,9-HexaCDD	0.1
1,2,3,4,6,7,8-HeptaCDD	0.01
OctaCDD	0.0001
2,3,7,8-TetraCDF	0.1
1,2,3,7,8-PentaCDF	0.05
2,3,4,7,8-PentaCDF	0.5
1,2,3,4,7,8-HexaCDF	0.1
1,2,3,6,7,8-HexaCDF	0.1
1,2,3,7,8,9-HexaCDF	0.1
2,3,4,6,7,8-HexaCDF	0.1
1,2,3,4,6,7,8-HeptaCDF	0.01
1,2,3,4,7,8,9-HeptaCDF	0.01
OctaCDF	0.0001

9. For every item of monitoring data where the requirements are not met, the monitoring report shall include a statement discussing the reasons for noncompliance, and of the actions undertaken or proposed which will bring the discharge into full compliance with requirements at the earliest time, and an estimate of the date when the discharger will be in compliance. The discharger shall notify the Regional Board and EPA by letter when compliance with the time schedule has been achieved.

10. By March 1 of each year, the discharger shall submit an annual receiving water monitoring report to the Regional Board and EPA. The report shall contain both tabular and graphical summaries of the monitoring data obtained during the previous year. In addition, the discharger shall discuss the compliance record and the corrective actions taken or planned which may be needed to bring the discharge into full compliance with the permit. The annual report shall include a summary of the quality assurance (QA) activities for the previous year.

11. [40 CFR 122.41(j)] *Monitoring and records*. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. The discharger shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least *5* years (or longer, as required by 40 CFR part 503), from the date of the sample, measurement, report, or application. This period may be extended by request of the Regional Board Executive Officer or EPA at any time. Records of monitoring information shall include:

    a. The date, exact place, and time of sampling or measurements;

    b. The individual(s) who performed the sampling or measurements;

    c. *The laboratory which performed the analyses*;

    d. The date(s) analyses were performed;

    e. The individual(s) who performed the analyses;

    f. The analytical techniques or methods used, *including any modifications*; and

    g. The results of such analyses, *including*:

        1) Units of measurement;

        2) Minimum reporting limit for the analysis (minimum level, practical quantitation level);

        3) Results less than the reporting limit but above the method detection limit;

        4) Data qualifiers and a description of the qualifiers;

        5) Quality control test results (and a written copy of the laboratory quality assurance plan);

        6) Dilution factors, if used; and

        7) Sample matrix type; and

h. Electronic data and information regarding influent and effluent flow, pH and other constituents subject to monitoring or effluent limitations generated by the Supervisory Control And Data Acquisition (SCADA) System.

12. The flow measurement system shall be calibrated at least once per year, or more frequently, to ensure continued accuracy.

13. All monitoring instruments and devices used by the discharger to fulfill the prescribed monitoring program shall be properly maintained and calibrated as necessary to ensure their continued accuracy. In the event that continuous monitoring equipment is out of service for greater than a 24-hour period, the discharger shall obtain a representative grab sample each day the equipment is out of service. The discharger shall correct the cause(s) of failure of the continuous monitoring equipment as soon as practicable. In its monitoring report, the discharger shall specify the period(s) during which the equipment was out of service and if the problem has not been corrected, identify the steps which the discharger is taking or proposes to take to bring the equipment back into service and the schedule for these actions.

14. Monitoring and reporting shall be in accordance with the following:

a. Monitoring and reporting of influent, effluent, biosolids/sludge, and pretreatment shall be done, at a minimum, on an annual basis, or more frequently, depending on the nature and effect of the sewage sludge use or disposal practice, or as specified in this permit.

b. The results of any sample analysis taken more frequently than required at the locations specified in this permit shall be reported to the Regional Board and EPA.

c. A "grab" sample is defined as any individual sample collected in less than 15 minutes.

d. A "composite" sample is defined as a combination of no fewer than eight individual samples obtained over the specified sampling period. The volume of each individual sample shall be proportional to the discharge flow rate at the time of sampling. The compositing period shall equal the specific sampling period, or 24 hours, if no period is specified.

e. Daily samples shall be collected on each day of the week.

f. 7-days/month sampling shall be arranged so that each day of the week is represented and that every week is represented each month.

g. Monthly samples shall be collected on any representative day of each month, unless other schedules are specified in this permit.

h. Quarterly, semi-annual, and annual samples shall be collected in accordance with the schedules specified in this permit.

i. During the term of this permit, certified analytical standards for individual chemicals used to determine the concentration of a constituent defined as the sum of a group of chemicals (e.g., chlordane) may become unavailable. When such a standard becomes unavailable, the discharger shall notify the Regional Board, the State Board's Quality Assurance Program, and EPA and shall report sample results for that constituent based on the sum of analytical results for the remaining chemicals with available certified standards.

15. All reports shall be signed by either a principal executive officer or ranking elected or appointed official or a duly authorized representative of a principal executive officer or ranking elected or appointed official. A duly authorized representative of a principal executive officer or ranking elected or appointed official may sign the reports only if:

a. The authorization is made in writing by a principal executive officer or ranking elected or appointed official;

b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, superintendent, or position of equivalent responsibility. (A duly authorized representative may thus be either a named individual or any individual occupying a named position); and

c. The written authorization is submitted to the Regional Board and EPA.

Each person signing a report required by this permit or other information requested by the Regional Board or EPA shall make the following certification:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

16. The discharger, unless otherwise specified elsewhere in this permit, shall deliver a copy of each monitoring report in the appropriate format to:

a. California Regional Water Quality Control Board
Santa Ana Region
3737 Main Street, Suite 500
Riverside, CA 92501-3348

b. U.S. Environmental Protection Agency
CWA Compliance Office, WTR-7
ATT: NPDES/DMR
75 Hawthorne Street
San Francisco, CA 94105-3901

B. INFLUENT AND EFFLUENT MONITORING:

1. Influent samples shall be taken at each point of inflow to the reclamation/treatment plants, upstream of any in-plant return flows, and shall be representative of influent to Reclamation Plant No. 1 and Treatment Plant No. 2. The date and time of sampling (as appropriate) shall be reported with the analytical values determined.

2. Effluent samples shall be taken downstream of the last addition of waste to the treatment or discharge works where a representative sample may be obtained prior to mixing with the receiving waters. The date and time of sampling (as appropriate) shall be reported with the analytical values determined.

3. The following shall constitute the influent and effluent monitoring programs, except for settleable solids, turbidity, pH, acute toxicity, chronic toxicity, total chlorine residual, and TCDD equivalents which shall be monitored only in the effluent:

Table B-1. Influent and effluent monitoring.

Constituent	***Units***	***Type of Sample***	***Minimum Frequency of Sampling and Analysis***
Flow rate	MGD	Record/Totalizer	Continuous
Biochemical oxygen demand (5-day)	mg/l	24-hr Composite	Daily
Carbonaceous biochemical oxygen demand (5-day)	mg/l	24-hr Composite	Daily
Grease and oil	mg/l	Grab[iv]	Monthly
Total suspended solids	mg/l	24-hr Composite	Daily
Settleable solids	ml/l	Grab	Daily
Turbidity	NTU	24-hr Composite	Monthly
PH	units	Grab	Monthly
Arsenic	ug/l	24-hr Composite	Monthly
Cadmium (see A.3)	ug/l	24-hr Composite	Monthly

Constituent	***Units***	***Type of Sample***	***Minimum Frequency of Sampling and Analysis***
Chromium (VI)[v]	ug/l	24-hr Composite	Monthly
Copper (see A.3)	ug/l	24-hr Composite	Monthly
Lead (see A.3)	ug/l	24-hr Composite	Monthly
Mercury (see A.3)	ug/l	24-hr Composite	Monthly
Nickel (see A.3)	ug/l	24-hr Composite	Monthly
Selenium (see A.3)	ug/l	24-hr Composite	Monthly
Silver (see A.3)	ug/l	24-hr Composite	Monthly
Zinc (see A.3)	ug/l	24-hr Composite	Monthly
Cyanide[vi]	ug/l	24-hr Composite	Monthly
Total chlorine residual	mg/l	Grab	Every 12 hours
Ammonia (as N)	mg/l	24-hr Composite	7-days/month
Acute toxicity	TUa	24-hr Composite	Quarterly
Chronic toxicity	TUc	24-hr Composite	Monthly
Phenolic compounds (non-chlorinated)	ug/l	24-hr Composite	Monthly
Chlorinated Phenolics	ug/l	24-hr Composite	Monthly
Endosulfan[vii]	ug/l	24-hr Composite	Monthly
Endrin	ug/l	24-hr Composite	Monthly
HCH[viii]	ug/l	24-hr Composite	Monthly
Radioactivity	pci/l	24-hr Composite	Monthly
Acrolein	ug/l	Grab	Quarterly
Antimony	ug/l	24-hr Composite	Monthly
Bis(2-chloroethoxy) methane	ug/l	24-hr Composite	Monthly
Bis(2-chloroisopropyl) ether	ug/l	24-hr Composite	Monthly
Chlorobenzene	ug/l	Grab	Quarterly
Di-n-butyl phthalate	ug/l	24-hr Composite	Monthly
Dichlorobenzenes[ix]	ug/l	24-hr Composite	Monthly

Constituent	***Units***	***Type of Sample***	***Minimum Frequency of Sampling and Analysis***
Diethyl phthalate	ug/l	24-hr Composite	Monthly
Dimethyl phthalate	ug/l	24-hr Composite	Monthly
4,6-dinitro-2-methylphenol	ug/l	24-hr Composite	Monthly
2,4-dinitrophenol	ug/l	24-hr Composite	Monthly
Ethylbenzene	ug/l	Grab	Quarterly
Fluoranthene	ug/l	24-hr Composite	Monthly
Hexachlorocyclopentadiene	ug/l	24-hr Composite	Monthly
Nitrobenzene	ug/l	24-hr Composite	Monthly
Thallium	ug/l	24-hr Composite	Monthly
Toluene	ug/l	Grab	Quarterly
1,1,1-trichloroethane	ug/l	Grab	Quarterly
Acrylonitrile	ug/l	Grab	Quarterly
Aldrin	ug/l	24-hr Composite	Monthly
Benzene	ug/l	Grab	Quarterly
Benzidine	ug/l	24-hr Composite	Monthly
Beryllium	ug/l	24-hr Composite	Monthly
Bis(2-chloroethyl) ether	ug/l	24-hr Composite	Monthly
Bis(2-ethylhexyl) phthalate	ug/l	24-hr Composite	Monthly
Carbon tetrachloride	ug/l	Grab	Quarterly
Chlordane[x]	ug/l	24-hr Composite	Monthlyr
Chlorodibromomethane	ug/l	Grab	Quarterly
Chloroform	ug/l	Grab	Quarterly
DDT[xi]	ug/l	24-hr Composite	Monthly
1,4-dichlorobenzene	ug/l	24-hr Composite	Monthly
3,3-dichlorobenzidine	ug/l	24-hr Composite	Monthly
1,2-dichloroethane	ug/l	Grab	Quarterly

Constituent	***Units***	***Type of Sample***	***Minimum Frequency of Sampling and Analysis***
1,1-dichloroethylene	ug/l	Grab	Quarterly
Dichlorobromomethane	ug/l	Grab	Quarterly
Dichloromethane	ug/l	Grab	Quarterly
1,3-dichloropropene	ug/l	Grab	Quarterly
Dieldrin	ug/l	24-hr Composite	Monthly
2,4-dinitrotoluene	ug/l	24-hr Composite	Monthly
1,2-diphenylhydrazine	ug/l	24-hr Composite	Monthly
Halomethanes[xii]	ug/l	Grab	Monthly
Heptachlor	ug/l	24-hr Composite	Monthly
Heptachlor epoxide	ug/l	24-hr Composite	Monthly
Hexachlorobenzene	ug/l	24-hr Composite	Monthly
Hexachlorobutadiene	ug/l	24-hr Composite	Monthly
Hexachloroethane	ug/l	24-hr Composite	Monthly
Isophorone	ug/l	24-hr Composite	Monthly
N-nitrosodimethylamine	ug/l	24-hr Composite	Monthly
N-nitrosodi-N-propylamine	ug/l	24-hr Composite	Monthly
N-nitrosodiphenylamine	ug/l	24-hr Composite	Monthly
PAHs[xiii]	ug/l	24-hr Composite	Monthly
PCBs[xiv]	ug/l	24-hr Composite	Monthly
TCDD equivalents	ug/l	24-hr Composite	Quarterly
1,1,2,2-tetrachloroethane	ug/l	Grab	Quarterly
Tetrachloroethylene	ug/l	Grab	Quarterly
Toxaphene	ug/l	24-hr Composite	Monthly
Trichloroethylene	ug/l	Grab	Quarterly
1,1,2-trichloroethane	ug/l	Grab	Quarterly
2,4,6-trichlorophenol	ug/l	24-hr Composite	Monthly

Constituent	***Units***	***Type of Sample***	***Minimum Frequency of Sampling and Analysis***
Vinyl chloride	ug/l	Grab	Quarterly
Remaining priority pollutants (See Attachment "A")	ug/l	24-hr Composite, unless otherwise specified in 40 CFR 136	Quarterly

4. The following Mass Emission Benchmarks, in metric tons per year (MT/yr), have been established for the discharge. The discharger shall monitor and report the mass emission rate for all constituents that have mass emission benchmarks. For each constituent, the 12-month average mass emission rate and the concentration and flow used to calculate that mass emission rate shall be reported in the annual pretreatment report and the annual receiving water monitoring report.

TABLE B-2. 12-Month Average Effluent Mass Emission Benchmarks.

Ocean Plan Constituent	***12-month Average (MT/yr)***	***Ocean Plan Constituent***	***12-month Average (MT/yr)***
Aquatic Life Objectives		***Human Health Objectives (Noncarcinogens)***	
Arsenic	1.92	Acrolein	24.96
Cadmium	0.55	Antimony	19.20
Chromium (VI)	2.94	Bis(2-chloroethoxy) methane	15.4
Copper	31.52	Bis(2-chloroisopropyl) ether	15.4
Lead	1.29	Chlorobenzene	1.91
Mercury	0.08	Di-n-butyl phthalate	15.39
Nickel	10.55	Dichlorobenzenes	15.4
Selenium	1.92	Diethyl phthalate	13.65
Silver	2.67	Dimethyl phthalate	7.68
Zinc	40.70	4,6-dinitro-2-methylphenol	76.81
Cyanide	7.75	2,4-dinitrophenol	76.81
Phenolic compounds (non-chlorinated)	218	Ethylbenzene	1.92
Chlorinated phenolics	27.6	Fluoranthene	7.68
Endosulfan	0.23	Hexachlorocyclopentadiene	15.4
Endrin	0.04	Nitrobenzene	7.68
HCH	0.30	Thallium	3.84
		Toluene	3.98

Ocean Plan Constituent	***12-month Average (MT/yr)***	***Ocean Plan Constituent***	***12-month Average (MT/yr)***
Aquatic Life Objectives		***Human Health Objectives (Noncarcinogens)***	
		1,1,1-trichloroethane	7.13
Human Health Objectives (Carcinogens)			
Acrylonitrile	18.06	1,2-diphenylhydrazine	15.4
Aldrin	0.08	Halomethanes	13.44
Benzene	3.23	Heptachlor + Heptachlor epoxide	0.08
Benzidine	76.81	Hexachlorobenzene	7.68
Beryllium	1.92	Hexachlorobutadiene	15.4
Bis(2-chloroethyl) ether	15.4	Hexachloroethane	7.68
Bis(2-ethylhexyl) phthalate	36.67	Isophorone	7.68
Carbon tetrachloride	1.92	N-nitrosodimethylamine	4.61
Chlordane	0.76	N-nitrosodiphenylamine	7.68
Chloroform	2.74	PAHs	99.854
DDT	0.26	PCBs	13.44
1,4-dichlorobenzene	7.68	TCDD equivalents	19.21
3,3-dichlorobenzidine	4.989	1,1,2,2-tetrachloroethane	1.92
1,2-dichloroethane	1.92	Tetrachloroethylene	1.92
1,1-dichloroethylene	1.92	Toxaphene	1.92
Dichloromethane	19.2	Trichloroethylene	1.92
1,3-dichloropropene	1.92	1,1,2-trichoroethane	1.92
Dieldrin	0.08	2,4,6-trichlorophenol	7.68
2,4-dinitrotoluene	7.68	Vinyl chloride	3.84

C. RECEIVING WATER MONITORING:

The following three components shall constitute the receiving water monitoring program:

- **Core Monitoring:** Shoreline monitoring and offshore water quality, sediment, fish community, and bioaccumulation monitoring are conducted to evaluate compliance with this permit, State water quality standards, and federal criteria;

- **Strategic Process Studies:** Each year, the discharger will conduct strategic process studies that address specific receiving water quality, discharge impacts, and ocean processes in the area of the discharge. The scope of these studies will be determined by the discharger, in coordination with the Regional Board and EPA. Studies will be approved by the Regional Board and EPA prior to implementation by the discharger.

- **Regional Monitoring Activities:** The discharger will participate in regional scale projects in association with groups such as the Southern California Coastal Water Research Project (SCCWRP), the Coastal Conservancy, and the Southern California Coastal Ocean Observing System (SCCOOS). These projects are designed to provide regional perspectives for the evaluation of wastewater discharges and other sources of contaminants to the Southern California Bight.

1. **Core Monitoring - Water Quality.** *The water quality monitoring program is designed to answer two principle questions: Are water column physical and chemical parameters within the ranges that ensure ecosystem protection? and What is the fate of the discharge plume?*

   Offshore water quality monitoring data are used to determine compliance with receiving water limitations, State water quality standards, and to assist in the interpretation of biological data. The Ocean Plan establishes quantitative water quality objectives for bacterial indicators, light transmittance, dissolved oxygen, pH, etc., as well as qualitative objectives for floating particulates, grease and oil, discoloration of the ocean surface, etc. Ammonia measurements are intended primarily to evaluate nutrient criteria, but will also be used to track the submerged wastewater plume. Coliform bacteria (total and *E. coli*) measurements are used to determine compliance with offshore water contact standards.

   The primary sampling approach for water quality shall be multiple-day studies carried out over a large grid of 29 stations centered on the outfall (Figure 1). The station grid covers approximately 72 km^2 (12 km × 6 km) adjacent to the coastline of Huntington Beach and Newport Beach. The 29 stations (Table D-1) shall be sampled three days per quarter. The stations shall be located and numbered as listed below.

Table C-1. Offshore Water Quality Monitoring Stations.

Station	*Latitude*	*Longitude*	*Depth*	*Discrete depths (m)*
2403*	33° 38.765'	118° 03.072'	21	1, 5, 10, 15, 19
2404	33° 37.875'	118° 03.808'	29	1, 5, 10, 15, 27
2405	33° 36.986	118° 04.544'	37	1, 5, 10, 15, 30, 35
2406	33° 36.096'	118° 05.280'	60	1, 5, 10, 15, 30, 45, 58
2303*	33° 37.537'	118° 00.936'	21	1, 5, 10, 15, 19
2304	33° 36.649'	118° 01.674'	29	1, 5, 10, 15, 27
2305	33° 35.760'	118° 02.412'	38	1, 5, 10, 15, 30, 36
2306	33° 34.871'	118° 03.149'	114	1, 5, 10, 15, 30, 45, 60
2203*	33° 36.313'	117° 58.810'	25	1, 5, 10, 15, 23
2204	33° 35.423'	117° 59.546'	39	1, 5, 10, 15, 30, 37
2205	33° 34.534'	118° 00.282'	57	1, 5, 10, 15, 30, 45, 55
2206	33° 33.644'	118° 01.018'	185	1, 5, 10, 15, 30, 45, 60
2103*	33° 35.089'	117° 56.678'	110	1, 5, 10, 15, 30, 45, 60
2104*	33° 34.199'	117° 57.414'	143	1, 5, 10, 15, 30, 45, 60
2105	33° 33.309'	117° 58.150'	280	1, 5, 10, 15, 30, 45, 60
2106	33° 32.420'	117° 58.885'	309	1, 5, 10, 15, 30, 45, 60
C2*	33° 36.125'	117° 56.014'	56	1, 5, 10, 15, 30, 45, 54
2351*	33° 38.151'	118° 02.001'	21	1, 5, 10, 15, 19
2352	33° 37.262'	118° 02.739'	29	CTD only
2353	33° 36.373'	118° 03.477'	37	CTD only
2354	33° 35.484'	118° 04.214'	123	CTD only
2223*	33° 36.934'	117° 59.871'	22	1, 5, 10, 15, 20
2224	33° 36.035'	118° 00.608'	31	CTD only
2225	33° 35.146'	118° 01.346'	47	CTD only
2226	33° 34.257'	118° 02.083'	135	CTD only
2183*	33° 35.701'	117° 57.744'	36	1, 5, 10, 15, 30, 34
2184	33° 34.811'	117° 58.480'	51	CTD only
2185	33° 33.922'	117° .59.215'	114	CTD only
2186	33° 33.032'	117° 59.951'	247	CTD only

Station 2205 is the nominal Zone of Initial Dilution (ZID) boundary station. Reference stations are determined using either current direction or the presence/absence of plume indicators (e.g., ammonia). The nominal inshore reference stations are 2404 and 2104. The nominal offshore reference stations are 2406 and 2105. Reference conditions shall be confirmed during each survey.

At each station, a secchi disk shall be used to assess transparency and visual observations of surface waters shall be noted. Dissolved oxygen (DO), temperature, salinity, light transmittance, photosynthetic active radiation (PAR), chlorophyll-*a*, and pH shall be measured at 1 m intervals throughout the entire water column to 2 m above the bottom at each station using a CTD with attached meters (for DO, light transmittance, PAR, chlorophyll-*a*, pH). All station depths shall be surveyed for actual bottom depth. At stations greater than 75 m, profiles shall be sampled to a maximum depth of 75 m. Grab samples for ammonia-nitrogen will be collected at 17 of the 29 offshore stations at discrete depths from 1 m below surface, 5 m, 10 m, 15 m, etc., to 2 m above the bottom or to a maximum depth of 60 m. Sampling for bacteriological indicators is discussed in the next section.

Table C-2. Offshore Water Quality Monitoring.

Constituent	***Units***	***Sample Type***	***Sample Depth***	***Sample Frequency***
Surface observations	n/a	Visual	Surface	3x / quarter
Transparency	meters	Secchi disc	Surface to extinction depth	3x / quarter
Dissolved oxygen	mg/l	Water column profile	1 m interval; from 1 m below surface to 2 m above bottom, (75 m maximum depth)	3x / quarter
Temperature	°C			
Salinity	psu			
Light transmittance	% transmittance			
PAR	µEinsteins sec^{-1} cm^{-2}			
Chlorophyll-*a*	ug/l			
PH	pH units			
Ammonia-nitrogen	mg/l	Grab	5 m intervals; from 1 m below surface to 2 m above bottom, (60 m maximum depth)	3x / quarter

Constituent	***Units***	***Sample Type***	***Sample Depth***	***Sample Frequency***
Total coliform organisms	MPN	Grab	5 m intervals; from 1 m below surface to 2 m above bottom, (60 m maximum depth)	5x / quarter
Escherichia coli	MPN	Grab		5x / quarter
Enterococci	MPN	Grab		5x / quarter

2. **Core Monitoring – Microbiological.** *The microbiological monitoring program is designed to answer two basic questions: Does sewage effluent reach water contact recreation zones? and Are densities of bacteria in water contact recreation zones below levels that will ensure public safety?*

The Regional Board has determined that the surface waters of the Offshore Zone, are used for water contact recreation. However the Regional Board and EPA have determined that it is appropriate to apply bacterial standards throughout the water column in the Offshore Zone to assure that the discharge does not pose a threat to water contact recreational uses.

For the purposes of determining compliance with Receiving Water Limitation C.2.a.1, five samples for total coliform organisms and *Escherichia coli* shall be collected at nine offshore water quality stations (2403, 2351, 2303, 2223, 2203, 2183, 2103, 2104, and C2). Seven of these nine stations form a row parallel to the coast and perpendicular to the outfall alignment (Figure 1). Stations 2104 and C2 are located downcoast near Newport Canyon. On a quarterly basis, bacterial samples shall be collected five times within a 30-day period at discrete depths from 1 m, 5 m, 10 m, 15 m below the surface, etc., to 2 m above the bottom, or a maximum depth of 60 m. Consistent with Ocean Plan requirements, enterococci samples shall also be collected at all stations where total and fecal coliform are required.

Shoreline bacterial monitoring assesses bacteriological conditions in areas used for water contact recreation (e.g., swimming, etc.) and where shellfish may be harvested for human consumption. Monitoring results are used to assess compliance with water quality standards. Total coliform organisms, fecal coliform organisms, and enterococci shall be sampled at 17 shoreline stations (Table C-3) according to the following schedule. Beginning Memorial Day to Labor Day, samples shall be collected five times per week. Beginning Labor Day through October 31, and beginning April 1 to Memorial Day, samples shall be collected three times per week. Beginning November 1 through March 31, samples shall be collected twice per week. Twice per week, grease observations and counts for grease particles shall be made along the previous high tide line at all shoreline stations.

Shoreline stations, located at approximately 3,000 and 6,000 ft intervals along the beach, extend from Station "0" at the mouth of the Santa Ana River 39,000 ft to the north (Bolsa Chica) and 39,000 ft to the south (Crystal Cove). The station designation indicates its approximate distance (in thousands of ft) and direction (north or south) from the mouth of the Santa Ana River (Figure 1). Shoreline stations shall be located and numbered as follows:

Table C-3. Shoreline Water Quality Monitoring Stations.

Station	***Latitude***	***Longitude***	***Depth***
39N	33° 42.114'	118° 03.321'	Surf
33N	33° 41.281'	118° 02.495'	Surf
27N	33° 40.587'	118° 01.712'	Surf
21N	33° 39.843'	118° 00.785'	Surf
15N	33° 39.114'	117° 59.846'	Surf
9N	33° 38.565'	117° 58.924'	Surf
6N	33° 38.331'	117° 58.573'	Surf
3N	33° 38.018'	117° 58.032'	Surf
0	33° 37.764'	117° 57.598'	Surf
3S	33° 37.619'	117° 57.264'	Surf
6S	33° 37.337'	117° 56.704'	Surf
9S	33° 37.004'	117° 56.207'	Surf
15S	33° 36.342'	117° 55.459'	Surf
21S	33° 36.059'	117° 54.213'	Surf
27S	33° 35.646'	117° 52.910'	Surf
29S	33° 35.559'	117° 52.508'	Surf
39S	33° 34.700'	117° 50.947'	Surf

Wind direction and speed, ocean temperature, weather, sea and tidal condition shall be recorded for each day of sampling, with the source(s) of the data documented. Tidal condition at 0800 hours obtained from the Southern California Tidelog shall also be recorded daily. At all shoreline stations, unusual water color, turbidity, odor, or other physical evidence of waste discharge at shall be noted on the log sheet, prepared at the time of sample collection.

3. **Core Monitoring – Sediment.** *The sediment monitoring program is designed to answer two questions: What is the spatial extent of the outfall effect on sediment conditions? and Are sediment conditions changing over time?*

The purpose of sediment monitoring is to map the area of impact and detect spatial and temporal trends in sediment pollutants and benthic infauna in the area of the discharge; and to assess compliance with State water quality standards and federal criteria. Stations ZB (located 60 m measured inshore from the midpoint of the long leg of the diffuser) and ZB2 (located 60 m northwest of the end of the diffuser) are the nominal ZID boundary stations. Sediment samples shall be collected on a quarterly basis from 10 stations (ZB, ZB2, 0, 1, 4, 5, 9, 12, C, and Control 1) and annually at an additional 39 stations using a 0.1 m^2 grab sampler (either Van Veen or box core). The locations of the benthic stations (Figure 2) are listed below:

Table C-4. Benthic Monitoring Station Locations.

Quarterly Stations	***Latitude***	***Longitude***	***Depth (m)***
0	33° 34.573'	118° 00.598'	56
1	33° 34.657'	118° 00.968'	56
4	33° 34.498'	117° 59.761'	56
5	33° 34.749'	118° 01.612'	59
9	33° 34.363'	117° 59.510'	59
12	33° 34.385'	117° 59.054'	58
C	33° 35.799'	118° 03.855'	56
Control 1	33° 36.037'	118° 05.387'	59
ZB	33° 34.545'	118° 00.274'	56
ZB2	33° 34.590'	118° 00.611'	56
Annual Stations	***Latitude***	***Longitude***	***Depth (m)***
3	33° 34.434'	118° 00.660'	60
7	33° 35.325'	118° 00.367'	41
8	33° 35.164'	117° 59.555'	44
10	33° 34.902'	118° 02.081'	62
13	33° 35.307'	118° 02.944'	59
17	33° 33.961'	118° 00.187'	91
18	33° 34.064'	118° 00.750'	91
20	33° 34.599'	118° 02.229'	100
21	33° 35.313'	118° 01.891'	44

Annual Stations	***Latitude***	***Longitude***	***Depth (m)***
22	33° 35.204'	117° 59.028'	45
23	33° 33.968'	117° 59.147'	100
24	33° 33.563'	118° 01.140'	200
25	33° 33.924'	118° 02.176'	200
27	33° 33.326'	117° 59.708'	200
29	33° 35.033'	118° 03.113'	100
30	33° 35.493'	118° 02.899'	46
33	33° 34.349'	117° 57.866'	100
36	33° 35.308'	117° 57.495'	45
37	33° 34.832'	117° 57.369'	56
38	33° 34.634'	117° 57.317'	100
39	33° 33.283'	117° 58.531'	200
40	33° 32.496'	117° 59.775'	303
41	33° 32.690'	118° 01.149'	303
42	33° 33.098'	118° 02.598'	303
44	33° 34.586'	118° 05.422'	241
C2	33° 36.125'	117° 56.014'	56
C4	33° 35.056'	117° 55.833'	187
C5	33° 33.920'	117° 55.620'	296
55	33° 36.739'	118° 05.413'	40
56	33° 35.665'	118° 05.417'	100
57	33° 34.970'	118° 05.418'	200
58	33° 33.365'	118° 05.347'	300
59	33° 36.070'	118° 03.701'	40
60	33° 35.532'	118° 04.017'	100
61	33° 35.011'	118° 04.326'	200
62	33° 34.069'	118° 04.568'	300
63	33° 34.173'	118° 03.407'	200
64	33° 33.484'	118° 03.663'	300
65	33° 33.859'	117° 57.230'	200

Sediment samples for chemical analyses shall be taken from the top 2 cm of the grab sample. The majority of the samples for physical and chemical measurements will be single samples (i.e., without replication). However three replicates are required for samples taken from the ten 60-meter stations in the summer. All samples shall be analyzed for the constituents listed below. For sediment chemistry, ambient monitoring may be conducted using EPA approved methods or methods developed by NOAA's National Status and Trends Program for Marine Environmental Quality. For chemical analysis of sediment, samples shall be reported on a dry weight basis.

Sediments shall be analyzed for grain size (phi), total organic carbon (%), and soluble sulfides (mg/kg). Sediments shall be analyzed for the following metals: aluminum, arsenic, beryllium, cadmium, chromium, copper, iron, lead, mercury, nickel, selenium, silver, and zinc. These metals shall be reported in units of mg/kg. Sediments shall be analyzed for the following PCBs and chlorinated pesticides (ug/kg):

Table C-5. Chlorinated pesticides and PCBs measured in sediments and tissues.

Chlorinated Pesticides			
2,4'-DDT		4,4'-DDT	
2,4'-DDD		4,4'-DDD	
2,4'-DDE		4,4'-DDE	
Aldrin		Heptachlor epoxide	
Alpha-Chlordane		Hexachlorobenzene	
Trans-Nonachlor		Lindane (gamma-BHC)	
Dieldrin		Mirex	
Heptachlor		Endrin	
PCB Congeners (PCB No.)			
8	81	128	177
18	87	138	180
28	99	149	183
37	101	151	187
44	105	153/168	189
49	110	156	194
52	114	157	195
66	118	158	201
70	119	167	206
74	123	169	209

PCB Congeners (PCB No.)			
77	126	170	

Sediments shall be analyzed for the following polycyclic aromatic hydrocarbons (ug/kg):

Table C-6. PAHs measured in sediments.

Polycyclic Aromatic Hydrocarbons (PAHs)			
Acenaphthene	2-methylnaphthalene	C_1-Chrysene	C_4-Phenanthrene/Anthracene
Anthracene	1-methylnaphthalene	C_2-Chrysene	C_1-Pyrene
Benz(a)anthracene	1-methylphenanthrene	C_3-Chrysene	Perylene
Benzo(e)pyrene	Naphthalene	C_4-Chrysene	Phenanthrene
Biphenyl	C_1-Naphthalene	Dibenzothiophene	Benzo(a)pyrene
Chrysene	C_2-Naphthalene	C_1-Dibenzothiophene	Benzo(b)fluoranthene
Dibenzo(a,h)anthracene	C_3-Naphthalene	C_2-Dibenzothiophene	Acenaphthlylene
2,6-dimethylnaphthalene	C_4-Naphthalene	C_3-Dibenzothiophene	Benzo(k)fluoranthene
Fluoranthene	C_1-Fluorene	C_1-Phenanthrene/Anthracene	Benzo(g,h,i)perylene
C1-Fluoranthene	C_2-Fluorene	C_2-Phenanthrene/Anthracene	Indeno(1,2,3-c,d)pyrene
Fluorene	C_3-Fluorene	C_3-Phenanthrene/Anthracene	2,3,5-trimethylnaphthalene

For analyses of benthic infauna, three replicate sediment samples shall be collected, combined and analyzed as a single sample at each of the ten quarterly stations. Single samples shall be collected for benthic infauna at each of the 39 annual stations in the summer. The benthic infaunal samples shall be collected using a 0.1 m^2 grab (Van Veen grab or box core). These sample grabs shall be separate from those collected for sediment analyses. The samples shall be sieved using a 1.0 mm mesh screen.

Benthic organisms retained on the sieve shall be fixed in 15% buffered formalin, and transferred to 70% ethanol within two to seven days for storage. These organisms may be stained using Rose Bengal to facilitate sorting. All organisms, including infauna organisms, obtained during benthic monitoring shall be counted and identified to as low a taxon as possible. This enumeration and identification of organisms continues the historical database developed by the discharger. Biomass shall be estimated from wet weight measurements for each of the following taxa: molluscs, echinoderms, polychaetes, crustaceans, and other taxa.

Community analyses shall consist of number of species, number of individuals per species and total numerical abundance, and biomass. Community analyses shall include, but not be limited to, the following: number of species per 0.1 m^2, total number of species per station, total numerical abundance, biomass, infaunal trophic index, Swartz' 75% dominance index, Shannon-Weiner's diversity index (H'), and Pielou evenness (J').

Annual reports shall include community parameters along with more detailed statistical comparisons including community, temporal, and spatial analyses. Methods may include, but are not limited to, various multivariate analyses such as cluster analysis, ordination, and regression. The discharger should also conduct additional analyses, as appropriate, to elucidate temporal and spatial trends in the data.

4. **Core Monitoring - Fish and Macroinvertebrates.** Trawls shall be conducted to assess the community structure of demersal fish and macro-invertebrates, and the presence of priority pollutants in fish. Trawling shall be conducted semi-annually with triplicate trawls taken at four stations (T1, T11, T12, T13), and duplicate trawls taken at five stations (T2, T3, T6, T10, T14). Trawls shall be conducted using a Marinovich 7.62 m (25 ft) head rope otter trawl, and guidance specified in the most recent field manual developed for regional monitoring in the Southern California Bight. Trawl stations (Figure 3) shall be located and numbered as follows:

Table C-7. Trawl Station Locations.

Station	*Latitude*	*Longitude*	*Depth (m)*
T1	33° 34.641'	118° 00.567'	55
T2	33° 35.688'	117° 59.561'	35
T3	33° 34.856'	117° 57.345'	55
T6	33° 35.946'	118° 02.785'	36
T10	33° 33.771'	118° 00.250'	137
T11	33° 36.055'	118° 05.199'	60
T12	33° 34.868'	118° 01.670'	57
T13	33° 35.535'	118° 03.637'	60
T14	33° 34.672'	118° 03.200'	137

Fish and macroinvertebrates collected by trawls should be identified to as low a taxon as possible. At all stations, community structure analysis should be conducted. Community structure analysis consists of: the wet weight of each species, number of individuals per species, total numerical abundance, species richness, species diversity (i.e., Shannon-Wiener), and multivariate pattern analyses (e.g., ordination and classification analyses). Abnormalities and disease symptoms shall be recorded and itemized (e.g., fin erosion, internal and external lesions, tumors).

Chemical analyses of fish tissue shall be performed annually on three fish species from two sites representing outfall and reference areas (T1 and T11, respectively; T12 and T13 may also be sampled if additional specimens are needed). The fish targeted for analyses are hornyhead turbot, English sole, bigmouth sole, and the sanddab guild. Chemical analyses are to be performed on at least 10 individuals for each species. For the sanddab guild, chemical analyses will be performed on 10 composite samples. Chemical analyses shall include mercury, chlorinated pesticides and PCBs, and total lipids. Samples shall be prepared from each trawl station for both liver and muscle tissue.

In addition, histopathological analyses shall be performed on liver tissues of 80 individuals per species from outfall and reference locations once every five years. A reasonable level of effort (five trawls per location) shall be applied to reach the target number of individuals. The purpose is to determine whether fish near the outfall have higher prevalence of pathology than fish sampled away from the outfall. Target species include white croaker, hornyhead turbot, English sole, and bigmouth sole. The frequency of histopathological analyses in this permit cycle (once every five years) is reduced from what the discharger has been doing since 1985 (annually). The effort is being redirected toward special studies to address the relationship in observed liver pathologies to other cellular biomarkers.

5. **Strategic Process Studies.** The discharger will propose strategic process studies (SPS) that address specific receiving water quality, discharge impacts, and ocean processes in the area of the discharge. The scope of these studies will be determined by the discharger, in coordination with the Regional Board and EPA. Studies will be approved by the Regional Board Executive Officer and EPA prior to implementation.

   The discharger shall report on the status of on-going and completed strategic process studies on at least an annual basis. Proposals for new strategic process studies will be presented to the Regional Board and EPA as they are developed. A scope of work for each proposal shall be provided by the discharger in order to obtain Regional Board and EPA approval, and to inform the public. Upon approval by the Regional Board and EPA, the discharger shall implement its strategic process study(ies).

   Strategic process studies to begin in year one of the permit include the following:

Physical Oceanography and Hydrography: The goal of this study is to measure and describe the spatial and temporal variability of current velocity fields on the San Pedro Shelf in the vicinity of the discharger's ocean outfalls. This information will improve evaluations of core monitoring and other strategic process studies, and provide a better understanding of the physical processes that control the movement and dilution of the wastewater plume. This study will incorporate a long-term telemetry mooring located near the 120-inch ocean outfall, multiple short-term (e.g., 90 days) moorings located to study areas of interest (such as the Newport submarine canyon and the shelf/slope area south of the canyon), and a vessel mounted current profiler used to create quasi-synoptic spatial maps of the current velocity and direction. It is anticipated that the telemetry mooring will be incorporated into the proposed California Coastal Ocean Observations System (CCOOS) via Proposition 40 funding.

The discharger shall also continue to support the co-operative, multi-agency Central Bight Water Quality Program. This project includes quarterly hydrographic sampling from Ventura to Crystal Cove State Beach. Included in this effort will be an in-depth analysis of data collected since 1998 and developing standardized methods of evaluating data of this type. Partners in this effort include the City of Oxnard, City of Los Angeles, and County Sanitation Districts of Los Angeles County.

Modeling: In addition to measuring and describing current velocity fields, the discharger has proposed to work collaboratively with other partners in developing and/or evaluating, calibrating, and verifying coastal circulation models for the San Pedro Shelf and local environs. The general scope of work will include incorporating very large-scale (e.g., eastern Pacific) models with much smaller (e.g., 1-km scale) circulation and fate and transport models. Work will be done in collaboration with federal, State and local agencies, and research institutions, including, but not limited to, U.S. Geological Survey, U.S. Army Corps of Engineers, and Southern California Coastal Water Research Project.

Biologic Effects: Organisms are integrators of chemical exposures and have been used in pollution studies to determine potential effects, especially for unmeasured contaminants. The prevalence of certain types of liver lesions in fish has been shown to be positively correlated with exposure to chemical contaminants and has been used as a bioindicator of exposure and environmental stress. The discharger has conducted histopathological studies on selected fish since 1985. Results to date indicate that only about 3% of the fish analyzed had significant liver pathologies, less than the 8% incidence rate reported from a regional reference area (Dana Point). For the three primary target species (white croaker, bigmouth sole, and hornyhead turbot), the most significant correlative was age; that is older (larger) fish had more liver lesions. For these three species, the outfall had either a lower incidence of pathology or there were no differences seen in fish from the outfall and farfield collection sites.

While OCSD's histopathology work has demonstrated the absence of significant biologic impacts of the discharge, there have been recent advances in studying cellular level impacts of chemical exposures using biomarkers such as stress proteins and the level of endocrine disruption within an organism. The discharger proposes evaluating several of these cellular biomarkers and their correlation with liver pathologies.

Evaluation of Trace Organic Constituents: The discharger's NPDES permit contains effluent limitations for 12 organic constituents for which there is limited information on whether they occur in the effluent at levels above the calculated effluent limitations. The constituents are: aldrin, benzidine, chlordane, 3,3'-dichlorobenzidine, dieldrin, heptachlor, heptachlor epoxide, hexachlorobenzene, PAHs, PCBs, TCDD equivalents, and toxaphene. The goals of this study are to: (1) gather additional information to determine whether these constituents are found in the effluent and at what levels; (2) determine the levels found in the environment (e.g., water column, sediment, fish tissue); and, if found, (3) determine the environmental and human health impacts of those measured constituents. It should be noted that the occurrence of these compounds in the environment may not be reflective of the present OCSD discharge as several of these pollutants may be "legacy" contaminants whose occurrence is due to historical inputs to the San Pedro shelf.

The project would use methods more sensitive than methods included in the permit where the concentration of the pollutant is reported as DNQ and the effluent limitation is less than the MDL, and/or other method(s) developed by OCSD. Samples will be taken from: (1) the final effluent; (2) water column (using collection methods such as SPME and/or caged mussels); (3) sediment; and (4) tissue (e.g., fish and/or mussel) from sites near to and removed from the OCSD ocean outfall. Results from this study will be used to evaluate the need for pollutant management plans. The Regional Board and EPA may use this information to re-evaluate the need for effluent limitations for the 12 organic constituents.

6. **Regional Monitoring Activities.** The discharger shall participate in regional monitoring activities coordinated by the SCCWRP. The procedures and time lines for Regional Board and EPA approval shall be the same as detailed above for Strategic Process Studies. The level of detail shall be similar to that in the summers of 1994, 1998, and 2003 which involved the following:

   a. Participation in the regional microbiological studies;

   b. Collection and analyses of water quality data;

   c. Collection and analyses of sediment grab samples for chemistry and benthos;

   d. Collection and analyses of fish and macroinvertebrate community structure at approximately 20 trawl stations; and

   e. Collection and analyses of fish tissue from approximately 20 stations for contaminants (organics and mercury), and analyses of selected biomarkers at a subset of stations.

D. GENERAL REPORTING:

1. Monitoring reports shall be submitted by the dates in the following schedule:

Report	***Frequency***	***Due Date***
Influent and effluent constituents	Monthly	By the 45th day following the end the monitoring period
Receiving Water Monitoring	Annually	March 1, each year
Offshore Water Quality	Quarterly	By the 45th day following the end the monitoring period
Shoreline Monitoring	Annually[xv]	March 1, each year
Biosolids Monitoring	Annually	February 19, each year
SIU Compliance	Semi-annually	March 31 and September 30 (or October 31), each year
Annual Pretreatment Report	Annually	October 31, each year
Quality Assurance Project Plan	Annually	July 15, each year

I, Gerard J. Thibeault, Executive Officer, do hereby certify that the foregoing is a full, true, and correct copy of Monitoring and Reporting Program No. R8-2004-0062, of NPDES Permit No. CA0110604, adopted by the California Regional Water Quality Control Board, Santa Ana Region, on _____ , 2004.

_____
Gerard J. Thibeault, Executive Officer
California Regional Water Quality Control Board
Santa Ana Region

I, Alexis Strauss, Director, do hereby certify that the foregoing is a full, true, and correct copy of Monitoring and Reporting Program No. R8-2004-0062, of NPDES Permit No. CA0110604, issued by the U.S. Environmental Protection Agency Region IX, on _____ , 2004.

_____
Alexis Strauss, Director
Water Division
U.S. Environmental Protection Agency
Region IX
For the Regional Administrator

FIGURE 1

Water Quality Monitoring Stations

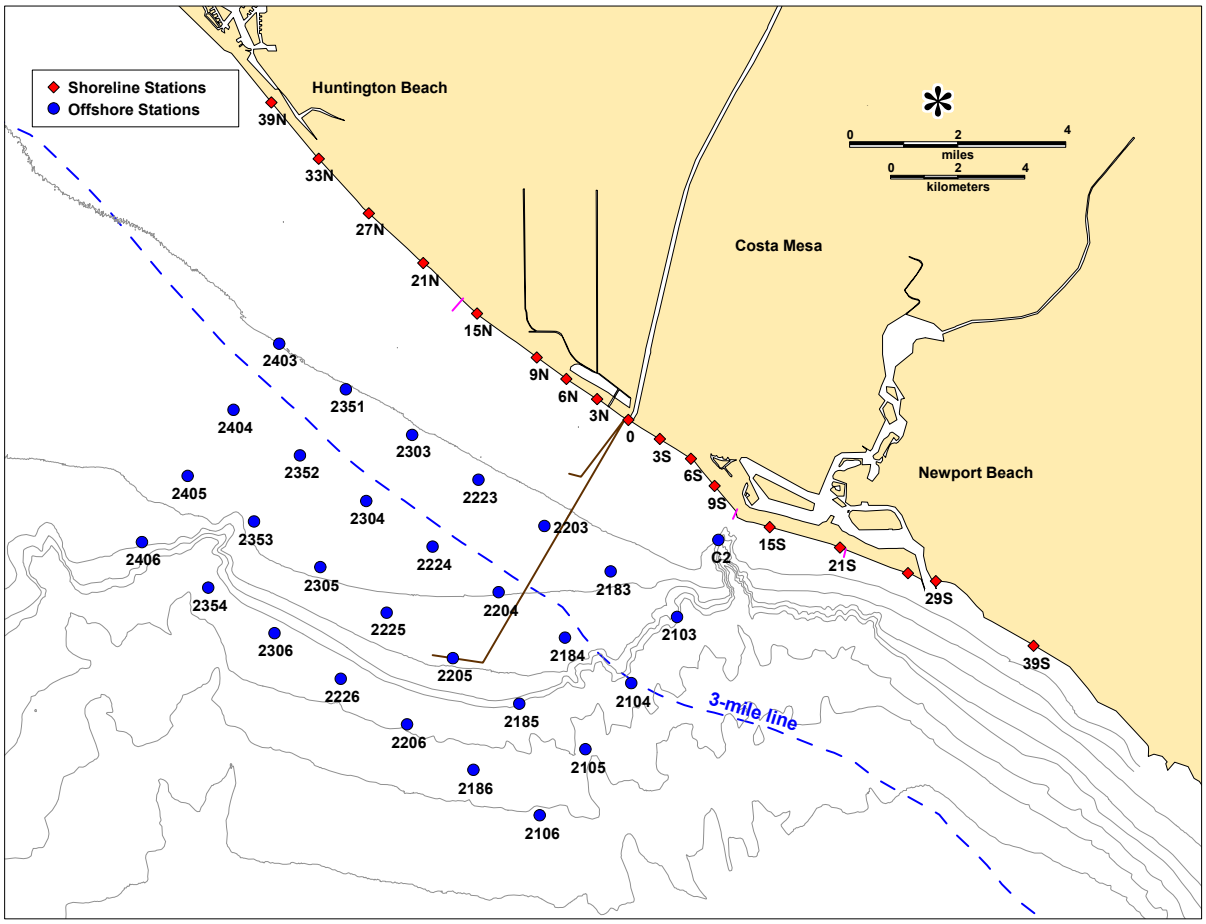


FIGURE 2

Benthic Monitoring Stations

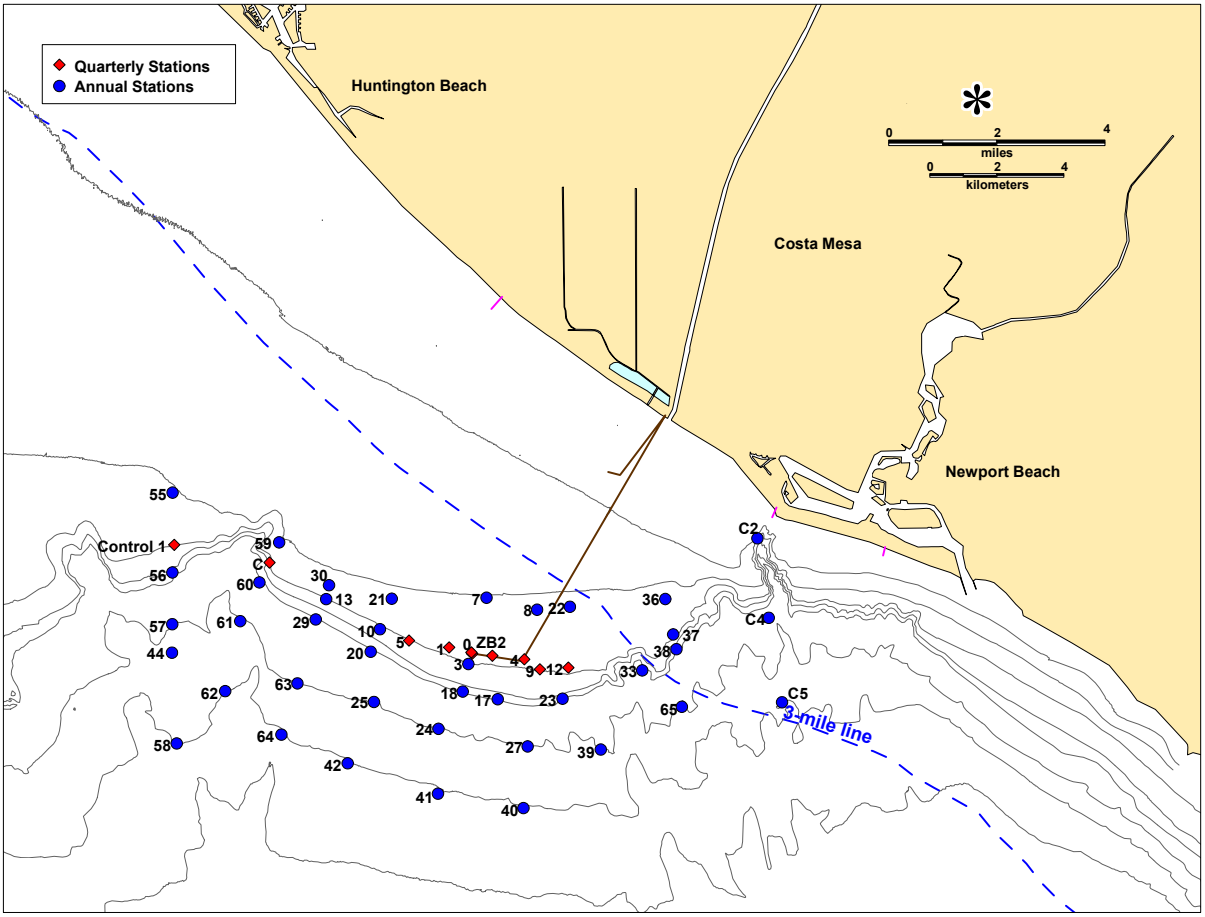
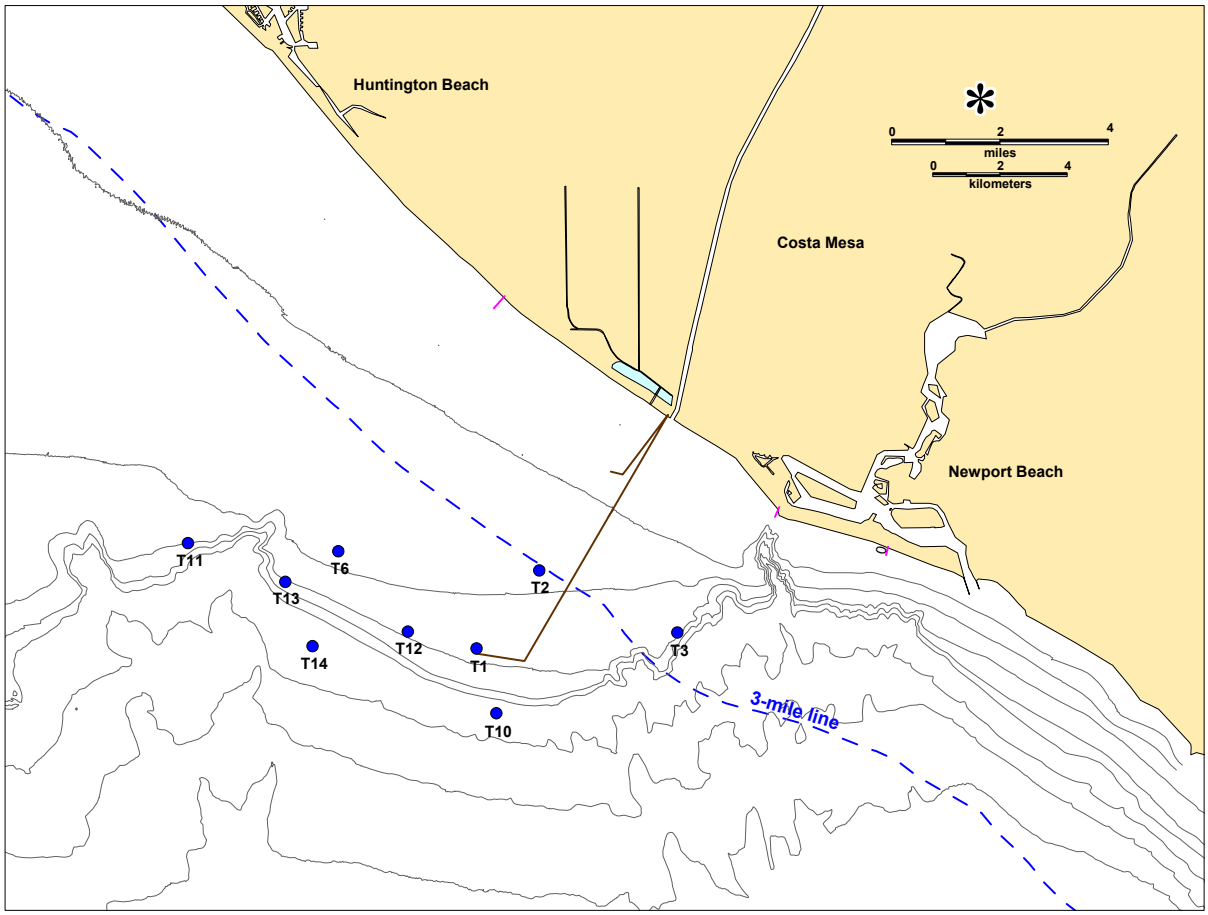


FIGURE 3

Trawl Stations



APPENDIX A

MINIMUM* LEVELS

The Minimum* Levels identified in this appendix represent the lowest concentration of a pollutant that can be quantitatively measured in a sample given the current state of performance in analytical chemistry methods in California. These Minimum* Levels were derived from data provided by State-certified analytical laboratories in 1997 and 1998 for pollutants regulated by the Ocean Plan and shall be used until new values are adopted by the SWRCB. There are four major chemical groupings: volatile chemicals, semi-volatile chemicals, inorganics, pesticides and PCB's. "No Data" is indicated by "—".

TABLE 1
MINIMUM* LEVELS - VOLATILE CHEMICALS

Volatile Chemicals	Minimum* Level (ug/l)		
	CAS Number	GC Method [a]	GCMS Method [b]
Acrolein	107028	2.	5
Acrylonitrile	107131	2.	2
Benzene	71432	0.5	2
Bromoform	75252	0.5	2
Carbon Tetrachloride	56235	0.5	2
Chlorobenzene	108907	0.5	2
Chlorodibromomethane	124481	0.5	2
Chloroform	67663	0.5	2
1,2-Dichlorobenzene (volatile)	95501	0.5	2
1,3-Dichlorobenzene (volatile)	541731	0.5	2
1,4-Dichlorobenzene (volatile)	106467	0.5	2
Dichlorobromomethane	75274	0.5	2
1,1-Dichloroethane	75343	0.5	1
1,2-Dichloroethane	107062	0.5	2
1,1-Dichloroethylene	75354	0.5	2
Dichloromethane	75092	0.5	2
1,3-Dichloropropene (volatile)	542756	0.5	2
Ethyl benzene	100414	0.5	2
Methyl Bromide	74839	1.	2
Methyl Chloride	74873	0.5	2
1,1,2,2-Tetrachloroethane	79345	0.5	2
Tetrachloroethylene	127184	0.5	2
Toluene	108883	0.5	2
1,1,1-Trichloroethane	71556	0.5	2
1,1,2-Trichloroethane	79005	0.5	2
Trichloroethylene	79016	0.5	2
Vinyl Chloride	75014	0.5	2

Table 1 Notes:

a) GC Method = Gas Chromatography.

b) GCMS Method = Gas Chromatography / Mass Spectrometry.

* To determine the lowest standard concentration in an instrument calibration curve for these techniques, use the given ML (see Chapter III of Ocean Plan, "Use of Minimum* Levels").

TABLE 2
MINIMUM* LEVELS - SEMI VOLATILE CHEMICALS

Semi-Volatile Chemicals	CAS Number	Minimum* Level (ug/L)			
		GC Method [a]	GCMS Method [b]	HPLC Method [c]	COLOR Method [d]
Acenapthylene	208968	--	10	0.2	--
Anthracene	120127	--	10	2	--
Benzidine	92875	--	5	--	--
Benzo(a)anthracene	56553	--	10	2	--
Benzo(a)pyrene	50328	--	10	2	--
Benzo(b)fluoranthene	205992	--	10	10	--
Benzo(g,h,i)perylene	191242	--	5	0.1	--
Benzo(k)floranthene	207089	--	10	2	--
Bis 2-(1-Chloroethoxy) methane	111911	--	5	--	--
Bis(2-Chloroethyl)ether	111444	10	1	--	--
Bis(2-Chloroisopropyl)ether	39638329	10	2	--	--
Bis(2-Ethylhexyl) phthalate	117817	10	5	--	--
2-Chlorophenol	95578	2	5	--	--
Chrysene	218019	--	10	5	--
Di-n-butyl phthalate	84742	--	10	--	--
Dibenzo(a,h)anthracene	53703	--	10	0.1	--
1,2-Dichlorobenzene (semivolatile)	95504	2	2	--	--
1,3-Dichlorobenzene (semivolatile)	541731	2	1	--	--
1,4-Dichlorobenzene (semivolatile)	106467	2	1	--	--
3,3-Dichlorobenzidine	91941	--	5	--	--
2,4-Dichlorophenol	120832	1	5	--	--
1,3-Dichloropropene	542756	--	5	--	--
Diethyl phthalate	84662	10	2	--	--
Dimethyl phthalate	131113	10	2	--	--
2,4-Dimethylphenol	105679	1	2	--	--
2,4-Dinitrophenol	51285	5	5	--	--
2,4-Dinitrotoluene	121142	10	5	--	--
1,2-Diphenylhydrazine (as Azobenzene)	122667	--	1	--	--
Fluoranthene	206440	10	1	0.05	--
Fluorene	86737	--	10	0.1	--
Hexachlorobenzene	118741	5	1	--	--
Hexachlorobutadiene	87683	5	1	--	--
Hexachlorocyclopentadiene	77474	5	5	--	--

TABLE 2 (CONTINUED)
MINIMUM* LEVELS - SEMI VOLATILE CHEMICALS

Semi-Volatile Chemicals	CAS Number	Minimum* Level (ug/L)			
		GC Method [a]	GCMS Method [b]	HPLC Method [c]	COLOR Method [d]
Hexachloroethane	67721	5	1	--	--
lndeno(1,2,3-cd)pyrene	193395	--	10	0.05	--
Isophorone	78591	10	1	--	--
2-methyl-4,6-dinitrophenol	534521	10	5	--	--
3-methyl-4-chlorophenol	59507	5	1	--	--
N-nitrosodi-n-propylamine	621647	10	5	--	--
N-nitrosodimethylamine	62759	10	5	--	--
N-nitrosodiphenylamine	86306	10	1	--	--
Nitrobenzene	98953	10	1	--	--
2-Nitrophenol	88755	--	10	--	--
4-Nitrophenol	100027	5	10	--	--
Pentachlorophenol	87865	1	5	--	--
Phenanthrene	85018	--	5	0.05	--
Phenol	108952	1	1	--	50
Pyrene	129000	--	10	0.05	--
2,4,6-Trichlorophenol	88062	10	10	--	--

Table 2 Notes:

a) GC Method = Gas Chromatography

b) GCMS Method = Gas Chromatography / Mass Spectrometry

c) HPLC Method = High Pressure Liquid Chromatography

d) COLOR Method = Colorimetric

* To determine the lowest standard concentration in an instrument calibration curve for this technique, multiply the given ML by 1000 (see Chapter III of Ocean Plan, "Use of Minimum* Levels").

TABLE 3
MINIMUM* LEVELS - INORGANICS

Inorganic Substances	CAS Number	Minimum* Level (ug/L)								
		COLOR Method [a]	DCP Method [b]	FAA Method [C]	GFAA Method [d]	HYDRIDE Method [e]	ICP Method [f]	ICPMS Method [g]	SPGFAA Method [h]	CVAA Method [i]
Antimony	7440360	--	1000.	10	5	0.5	50	0.5	5	--
Arsenic	7440382	20	1000.	--	2.	1.	10.	2.	2.	--
Beryllium	7440417	--	1000.	20.	0.5	--	2.	0.5	1.	--
Cadmium	7440439	--	1000.	10.	0.5	--	10.	0.2	0.5	--
Chromium (total)	--	--	1000.	50.	2.	--	10.	0.5	1.	--
Chromium (VI)	18540299	10	--	5.	--	--	--	--	--	--
Copper	7440508		1000.	20.	5.	--	10.	0.5	2.	--
Cyanide	57125	5.	--	--	--	--	--	--	--	--
Lead	7439921	--	10000.	20	5.	--	5.	0.5	2.	--
Mercury	7439976	--	--	--	--	--	--	0.5	--	0.2
Nickel	7440020	--	1000.	50	5.	--	20.	1.	5.	--
Selenium	7782492	--	1000.	--	5.	1.	10.	2.	5.	--
Silver	7440224	--	1000.	10	1.	--	10.	0.2	2.	--
Thallium	7440280	--	1000.	10	2.	--	10.	1.	5.	--
Zinc	7440666	--	1000.	20	--	--	20.	1.	10.	--

Table 3 Notes:

a) COLOR Method = Colorimetric
b) DCP Method = Direct Current Plasma
c) FAA Method = Flame Atomic Absorption
d) GFAA Method = Graphic Furnace Atomic Absorption
e) HYDRIDE Method = Gaseous Hydride Atomic Absorption
f) ICP Method = Inductively Coupled Plasma
g) ICPMS Method = Inductively Coupled Plasma / Mass Spectrometry
h) SPGFAA Method = Stabilized Platform Graphite Furnace Atomic Absorption (i.e., USEPA 200.9)
i) CVAA Method = Cold Vapor Atomic Absorption

* To determine the lowest standard concentration in an instrument calibration curve for this technique, multiply the given ML (see Chapter III of Ocean Plan, "Use of Minimum* Levels").

TABLE 4
MINIMUM* LEVELS - PESTICIDES AND PCBs

Pesticides and PCBs	CAS Number	Minimum* Level (ug/L)
		GC Method [a]
Aldrin	309002	0.005
Chlordane	57749	0.1
4,4'-DDD	72548	0.05
4,4'-DDE	72559	0.05
4,4'-DDT	50293	0.01
Dieldrin	60571	0.01
a-Endosulfan	959988	0.02
b-Endosulfan	33213659	0.01
Endosulfan Sulfate	1031078	0.05
Endrin	72208	0.01
Heptachlor	76448	0.01
Heptachlor Epoxide	1024573	0.01
a-Hexachlorocyclohexane	319846	0.01
b-Hexachlorocyclohexane	319857	0.005
d-Hexachlorocyclohexane	319868	0.005
g-Hexachlorocyclohexane (Lindane)	58899	0.02
PCB 1016	--	0.5
PCB 1221	--	0.5
PCB 1232	--	0.5
PCB 1242	--	0.5
PCB 1248	--	0.5
PCB 1254	--	0.5
PCB 1260	--	0.5
Toxaphene	8001352	0.5

Table 4 Notes:

a) Method = Gas Chromatography

* To determine the lowest standard concentration in an instrument calibration curve for this technique, multiply the given ML by 100 (see Chapter III of Ocean Plan, "Use of Minimum* Levels").

APPENDIX B

A. EPA PRIORITY POLLUTANT LIST

B. Metals

1.	Antimony
2.	Arsenic
3.	Beryllium
4.	Cadmium
5a.	Chromium (III)
5b.	Chromium (VI)
6.	Copper
7.	Lead
8.	Mercury
9.	Nickel
10.	Selenium
11.	Silver
12.	Thallium
13.	Zinc

C. Miscellaneous

14.	Cyanide
15.	Asbestos (not required unless requested)
16.	2,3,7,8-Tetrachlorodibenzo-P-Dioxin (TCDD)

Volatile Organics

17.	Acrolein
18.	Acrylonitrile
19.	Benzene
20.	Bromoform
21.	Carbon Tetrachloride
22.	Chlorobenzene
23.	Chlorodibromomethane
24.	Chloroethane
25.	2-Chloroethyl Vinyl Ether
26.	Chloroform
27.	Dichlorobromomethane
28.	1,1-Dichloroethane
29.	1,2-Dichloroethane
30.	1,1-Dichloroethylene
31.	1,2-Dichloropropane
32.	1,3-Dichloropropylene
33.	Ethylbenzene
34.	Methyl Bromide
35.	Methyl Chloride
36.	Methylene Chloride
37.	1,1,2,2-Tetrachloroethane
38.	Tetrachloroethylene
39.	Toluene
40.	1,2-Trans-Dichloroethylene
41.	1,1,1-Trichloroethane
42.	1,1,2-Trichloroethane
43.	Trichloroethylene
44.	Vinyl Chloride

Acid Extractibles

45.	2-Chlorophenol
46.	2,4-Dichlorophenol
47.	2,4-Dimethylphenol
48.	2-Methyl-4,6-Dinitrophenol
49.	2,4-Dinitrophenol
50.	2-Nitrophenol
51.	4-Nitrophenol
52.	3-Methyl-4-Chlorophenol
53.	Pentachlorophenol
54.	Phenol
55.	2, 4, 6 - Trichlorophenol

Base/Neutral Extractibles

56.	Acenaphthene
57.	Acenaphthylene
58.	Anthracene
59.	Benzidine
60.	Benzo (a) Anthracene
61.	Benzo (a) Pyrene
62.	Benzo (b) Fluoranthene
63.	Benzo (g,h,i) Perylene
64.	Benzo (k) Fluoranthene
65.	Bis (2-Chloroethoxy) Methane
66.	Bis (2-Chloroethyl) Ether
67.	Bis (2-Chloroisopropyl) Ether
68.	Bis (2-Ethylhexyl) Phthalate
69.	4-Bromophenyl Phenyl Ether
70.	Butylbenzyl Phthalate
71.	2-Chloronaphthalene
72.	4-Chlorophenyl Phenyl Ether
73.	Chrysene
74.	Dibenzo (a,h) Anthracene
75.	1,2-Dichlorobenzene
76.	1,3-Dichlorobenzene
77.	1,4-Dichlorobenzene
78.	3,3'-Dichlorobenzidine
79.	Diethyl Phthalate
80.	Dimethyl Phthalate
81.	Di-n-Butyl Phthalate
82.	2,4-Dinitrotoluene
83.	2-6-Dinitrotoluene
84.	Di-n-Octyl Phthalate
85.	1,2-Diphenylhydrazine
86.	Fluoranthene
87.	Fluorene
88.	Hexachlorobenzene
89.	Hexachlorobutadiene
90.	Hexachlorocyclopentadiene

Base/Neutral Extractibles (continuation)

91.	Hexachloroethane
92.	Indeno (1,2,3-cd) Pyrene
93.	Isophorone
94.	Naphthalene
95.	Nitrobenzene
96.	N-Nitrosodimethylamine
97.	N-Nitrosodi-N-Propylamine
98.	N-Nitrosodiphenylamine
99.	Phenanthrene
100.	Pyrene
101.	1,2,4-Trichlorobenzene

Pesticides

102.	Aldrin
103.	Alpha BHC
104.	Beta BHC
105.	Delta BHC
106.	Gamma BHC
107.	Chlordane
108.	4, 4' - DDT
109.	4, 4' - DDE
110.	4, 4' - DDD
111.	Dieldrin
112.	Alpha Endosulfan
113.	Beta Endosulfan
114.	Endosulfan Sulfate
115.	Endrin
116.	Endrin Aldehyde
117.	Heptachlor
118.	Heptachlor Epoxide
119.	PCB 1016
120.	PCB 1221
121.	PCB 1232
122.	PCB 1242
123.	PCB 1248
124.	PCB 1254
125.	PCB 1260
126.	Toxaphene

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APPENDIX C

PRACTICAL QUANTITATION LEVELS FOR COMPLIANCE DETERMINATION

	Constituent	RL µg/l	Analysis Method
1	Arsenic	7.5	GF/AA/ICPMS
2	Barium	20	ICP/GFAA/ICPMS
3	Cadmium	15	ICP/ICPMS
4	Chromium (VI)	15.0	ICP/ICPMS
5	Cobalt	10.0	GF/AA/ICPMS
6	Copper	19.0	GF/ICP/ICPMS
7	Cyanide	50.0	335.2/335.3
8	Iron	100.0	ICP/ICPMS
9	Lead	26.0	GF/AA/ICPMS
10	Manganese	20.0	ICP/ICPMS
11	Mercury	0.5	CV/AA
12	Nickel	50.0	ICPICPMS
13	Selenium	14.0	GF/HYDRIDE GENERATION/ICPMS
14	Silver	16.0	ICP/ICPMS
15	Zinc	20	ICP/ICPMS
16	1,2 - Dichlorobenzene	5.0	601/602/624/625
17	1,3 - Dichlorobenzene	5.0	601/624/625
18	1,4 - Dichlorobenzene	5.0	601/624/625
18	2,4 - Dichlorophenol	10.0	625/604
20	4 - Chloro -3- methylphenol	10.0	625/604
21	Aldrin	0.04	608
22	Benzene	1.0	602/624
23	Chlordane	0.30	608
24	Chloroform	5.0	601/624
25	DDT	0.10	608
26	Dichloromethane	5.0	601/624
27	Dieldrin	0.10	608
28	Fluoranthene	10.0	625/610
29	Endosulfan	0.50	608
30	Endrin	0.10	608
31	Halomethanes	5.0	601/624
32	Heptachlor	0.03	608
33	Hepthachlor Epoxide	0.05	608
34	Hexachlorobenzene	10.0	625
35	Hexachlorocyclohexane		
	Alpha	0.03	608
	Beta	0.03	608
	Gamma	0.03	608
36	PAHs	10.0	625/610
37	PCBs	1.0	608
38	Pentachlorophenol	10.0	625/604
39	Phenol	10.0	625/604
40	TCDD Equivalent	0.05	8280
41	Toluene	1.0	624
42	Toxaphene	2.0	608
43	Tributyltin	0.02	GC
44	2,4,6-Trichlorophenol	10.0	625/604

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[i] *Minimum Level (ML) is the concentration at which the entire analytical system must give a recognizable signal and acceptable calibration point. The ML is the concentration in a sample that is equivalent to the concentration of the lowest calibration standard analyzed by a specific analytical procedure, assuming that all the method-specified sample weights, volumes, and processing steps have been followed.*

[ii] *MDL (Method Detection Limit) is the minimum concentration of a substance that can be measured and reported with 99 percent confidence that the analyte concentration is greater than zero, as defined in 40 CFR 136, Appendix B.*

[iii] *PQL is the lowest concentration of a substance which can be determined within ± 20 percent of the true concentration by 75 percent of the analytical laboratories tested in a performance evaluation study. Alternatively, if performance data are not available, the PQL is the MDL x 5 for carcinogens and MDL x 10 for noncarcinogens.*

[iv] *Grease and oil monitoring in the influent/effluent shall consist of three grab samples taken over a 24-hour period at approximately equal intervals. One sample shall be taken during peak flow. Each sample shall be extracted separately and the weight of residue from each extract shall be mathematically combined according to the flow to produce a single composite sample result. All other grab samples shall consist of a single grab at peak flow or multiple grabs taken at approximately equal intervals including one taken during peak flow.*

[v] *The discharger may at their option meet this objective as a total chromium objective.*

[vi] *If a discharger can demonstrate to the satisfaction of the Regional Board and EPA that an analytical method is available to reliably distinguish between strongly and weakly complexed cyanide, effluent limitations for cyanide may be met by the combined measurement of free cyanide, simple alkali metal cyanides, and weakly complexed organometallic cyanide complexes. In order for the analytical method to be acceptable, the recovery of free cyanide from metal complexes must be comparable to that achieved by the approved method in the most recent edition of 40 CFR 136.*

[vii] *Endosulfan shall mean the sum of endosulfan-alpha and -beta and endosulfan sulfate.*

[viii] *HCH shall mean the sum of the alpha, beta, gamma (lindane), and delta isomers of hexachlorocyclohexane.*

[ix] *Dichlorobenzenes shall mean the sum of 1,2- and 1,3-dichlorobenzene.*

[x] *Chlordane shall mean the sum of chlordane-alpha, chlordane-gamma, chlordene-alpha, chlordene-gamma, nonachlor-alpha, nonachlor-gamma, and oxychlordane.*

[xi] *DDT shall mean the sum of 4,4'DDT, 2,4'DDT, 4,4'DDE, 2,4'DDE, 4,4'DDD, and 2,4'DDD.*

[xii] *Halomethanes shall mean the sum of bromoform, bromomethane (methyl bromide), chloromethane (methyl chloride).*

[xiii] *PAHs (polynuclear aromatic hydrocarbons) shall mean the sum of acenaphthylene, anthracene, 1,2-benzanthracene, 3,4-benzofluoranthene, benzo[k]fluoroanthene, 1,12-benzoperylene, benzo[a]pyrene, chrysene, dibenzo[ah]anthracene, fluorene, indeno[1,2,3-cd]pyrene, phenanthrene, and pyrene.*

[xiv] *PCBs (polychlorinated biphenyls) shall mean the sum of chlorinated biphenyls whose analytical characteristics resemble those of Aroclor-1016, Aroclor-1221, Aroclor-1232, Aroclor-1242, Aroclor-1248, Aroclor-1254, and Aroclor-1260.*

[xv] *Shoreline microbiological results shall be reported annually to the Regional Board and EPA, except that the discharger shall continue to report the results on a timely basis (approximately daily) to the County of Orange Health Care Agency, Environmental Health, and shall place such data on the Internet each month. During any month that the effluent disinfection system does not operate continuously for a 24-hour period or longer, the discharger shall report shoreline microbiological monitoring results monthly to the Regional Board and EPA.*